

**Proposed Title: Achieving the Proper Balance Between Crew & Public Safety****Authors: John Gowan (NASA JSC), Paul Rosati (AF 45th SW), Ray Silvestri (NASA JSC), Ben Stahl (NASA JSC), and Paul Wilde (FAA)****Abstract**

A paramount objective of all human-rated launch and reentry vehicle developers is to ensure that the risks to both the crew onboard and the public are minimized within reasonable cost, schedule, and technical constraints. Past experience has shown that proper attention to range safety requirements necessary to ensure public safety must be given early in the design phase to avoid additional operational complexities or threats to the safety of people onboard. This paper will outline the policy considerations, technical issues, and operational impacts regarding launch and reentry vehicle failure scenarios where crew and public safety are intertwined and thus addressed optimally in an integrated manner. Historical examples and lessons learned from both the Space Shuttle and Constellation Programs will be presented. Using these examples as context, the paper will discuss some operational, design, and analysis approaches to mitigate and balance the risks to people onboard and in the public. Manned vehicle perspectives from the FAA and Air Force organizations that oversee public safety will also be summarized. Finally, the paper will emphasize the need to factor policy, operational, and analysis considerations into the early design trades of new vehicles to help ensure that both crew and public safety are maximized to the greatest extent possible.